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Serial No. 09/988,185

SEP 08 2004 PD980030

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Inventors : Oldermann et al.
Serial No. : 09/988,185
Filed : November 19, 2001
Title : DISK DRIVE WITH COMPENSATION OF DISK
ECCENTRICITY
Examiner : William Joseph Klimowicz
Art Unit : 2652

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Patricia A. Verlangieri

APPELLANTS' BRIEF UNDER C. F. R. § 1.192

On April 9, 2004, Appellants' filed a timely Notice of Appeal (that was received in the United States Patent and Trademark Office on April 9, 2004) from the action of the Examiner finally rejecting pending claims 9-11 and 18-19. The Appellants' herein file this Brief in accordance with 37 C. F. R. § 1.192.

1. IDENTIFICATION OF THE REAL PARTY IN INTEREST

The real party in interest for the above-identified application is Thomson Inc., which is the assignee of the assignee of record for this application, Deutsche Thomson-Brandt GmbH.

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2. IDENTIFICATION OF RELATED APPEALS OR INTERFERENCES

To the best of the appellants' knowledge, there are no appeals or interferences that will be directly affected by, or will have a bearing on the decision of this appeal.

3. STATUS OF THE CLAIMS

The above-identified patent application was filed on November 19, 2001 and is a divisional application of U. S. Patent 6,366,552 issued April 2, 2002, which claims priority under 35 U. S. C. § 119 to European Patent Application No. 98401163.5 filed May 15, 1998. Pursuant to a Preliminary Amendment filed in the above-identified patent application on November 19, 2001, claims 2, 4 8-16 and 18-20 were pending. In the Preliminary Amendment claims 9-11 were amended.

In a first Office Action, mailed January 21, 2003 (Paper No. 5), claims 2, 4, 8-16 and 18-20 were subject to restriction pursuant to 35 U. S. C. § 121.

In Appellants' response to the first Office Action, dated April 14, 2003, claims 9-11 and 18-19 were elected for prosecution. Claims 2, 4, 8, 12-16 and 20 were withdrawn as being directed to a non-elected invention.

A second Office Action was mailed May 28, 2003 (Paper No. 7), in which claims 9-11 and 18-19 were rejected.

In Appellants' response to the second Office Action, dated August 27, 2003, claim 9 was amended.

The Examiner in a third Office Action, mailed October 9, 2003 (Paper No. 9), finally rejected claims 9-11 and 18-19.

The status of the claims is as follows:

Twice amended claim 9. Once amended claims 10-11. Original claims 18-19. A copy of the claims, as amended, is attached as Appendix A. Claims 9-11 and 18-19 stand finally rejected.

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4. STATUS OF THE AMENDMENTS

No amendments were made to the claims after final rejection. All amendments were entered.

5. SUMMARY OF THE INVENTION

Appellants' invention, as set forth in independent claim 9, is directed to a device used for rotating disk shaped data carriers inside of disk players and/or recorders. See Appellants' specification at page 1, lines 2-3. The device includes a fixing means 4 and 5, a driving means 6 and a centering means 21. See Appellants' specification at FIG. 3 and page 9, lines 20-30. The fixing means in one embodiment includes a plate 4 that supports a surface of a data carrier 1 having an opening 2 therein and an elongate part 5, which is inserted in the opening 2 such that the data carrier 1 is removably fixed thereto. See Appellants' specification at FIG. 2 and page 8, line 30 to page 8, line 1. The driving means 6 (i.e., electric motor (see Appellants' specification at page 7, lines 25-26)) acts on the fixing means 4 and 5 through a transmission means 7. See Appellants' specification at FIG. 2 and page 9, lines 1-2. The driving means 6 is partly connected to the disk player and/or recorder through elastical elongation means (e.g., springs 14 and 15). See Appellants' specification at FIG. 2 and page 9, lines 2-4. The centering means 21 disposed on the fixing means positions the elongate part 5 of the fixing means in a central position when the driving means 6 stops driving the data carrier 1. See Appellants' specification at FIG. 3 and page 10, lines 5-8.

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6. ISSUES

The issues on appeal are:

1. Whether Appellants' claims 9-11 and 18 are anticipated by U. S. Patent No. 5,587,617 to Dunfield et al. (Dunfield et al. hereinafter).
2. Whether Appellant's claim 19 is obvious over Dunfield et al. in view of U. S. Patent 5,140,479 to Elsing et al. (Elsing et al. hereinafter).

7. GROUPING OF CLAIMS

Each of Appellants' finally rejected claims 9-11 and 18-19 stands alone.

8. ARGUMENT

1. Claims 9-11 and 18 are not anticipated by Dunfield et al.

Dunfield et al. describes a disk drive assembly 50. See Dunfield et al. at FIG. 2 and column 5, lines 52-53. In disk drive assembly 50, a disk 60 is journaled about a shaft 62 that is rotated by an underlying spindle motor. See Dunfield et al. at FIG. 2 and column 5, lines 56-58. The spindle motor may be a magnetic bearing assembly 300. See Dunfield et al. at FIG. 3 and column 6, lines 3-5. The magnetic bearing assembly 300 includes a stator 312 having a conventional axial pivot 314 around which a hub shaft 316 of the rotor 317 rotates. See Dunfield et al. at FIG. 3 and column 6, lines 5-8.

In Appellants' independent claim 9 a device used for rotating disk shaped data carriers inside of disk players and/or recorders is described. See Appellants' specification at page 1, lines 2-3. The device includes a fixing means 4 and 5, a driving means 6 and a centering means 21. See Appellants' specification at FIG. 3 and page 9, lines 20-30. The fixing means in one embodiment includes a plate 4 that supports a surface of a data carrier 1 having an opening 2 therein and an

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elongate part 5, which is inserted in the opening 2 such that the data carrier 1 is removably fixed thereto. See Appellants' specification at FIG. 2 and page 8, line 30 to page 8, line 1. The driving means 6 (i.e., electric motor (see Appellants' specification at page 7, lines 25-26)) acts on the fixing means 4 and 5 through a transmission means 7. See Appellants' specification at FIG. 2 and page 9, lines 1-2. The driving means 6 is partly connected to the disk player and/or recorder through elastical elongation means (e.g., springs 14 and 15). See Appellants' specification at FIG. 2 and page 9, lines 2-4. The centering means 21 disposed on the fixing means positions the elongate part 5 of the fixing means in a central position when the driving means 6 stops driving the data carrier 1. See Appellants' specification at FIG. 3 and page 10, lines 5-8.

Dunfield et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier. Rather, Dunfield et al. discloses a completely different arrangement in which a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly. Since Dunfield et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, claim 9 is patentable over Dunfield et al.

Claim 10 depends directly from claim 9 and recites a limitation that a rotor magnet of a driving means is repulsed at a determined distance from a stator electro-magnet by magnetic forces when the driving means drives the data carrier. See Appellants' specification at page 11, lines 7-11.

Dunfield et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central

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position when a driving means stops driving a data carrier and further wherein a rotor magnet of the driving means is repulsed at a determined distance from a stator electro-magnet by magnetic forces when the driving means drives the data carrier. Rather, Dunfield et al. discloses a completely different arrangement in which a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly. Since Dunfield et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, claim 10 is patentable over Dunfield et al.

Claim 11 depends directly from claim 9 and recites a limitation that the elongate part of the fixing means has a point contact with the player and/or recorder such that a rotation axis of the fixing means passes through the point contact. See Appellants' specification at page 11, line 28 to page 12, line 2.

Dunfield et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier and further wherein an elongate part of the fixing means has a point contact with the player and/or recorder such that a rotation axis of the fixing means passes through the point contact. Rather, Dunfield et al. discloses a completely different arrangement in which a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly. Since Dunfield et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, claim 11 is patentable over Dunfield et al.

Claim 18 depends from claim 10 and recites a limitation that the elongate part of the fixing means has a point contact with the player and/or recorder such that a rotation axis of the fixing means passes through the point contact. See Appellants' specification at page 12, lines 3-16.

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Dunfield et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, wherein a rotor magnet of the driving means is repulsed at a determined distance from a stator electro-magnet by magnetic forces when the driving means drives the data carrier and further wherein an elongate part of the fixing means has a point contact with the player and/or recorder such that a rotation axis of the fixing means passes through the point contact. Rather, Dunfield et al. discloses a completely different arrangement in which a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly. Since Dunfield et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, claim 18 is patentable over Dunfield et al.

2. Claim 19 is not obvious over Dunfield et al. in view of Elsing et al.

Dunfield et al. describes a disk drive assembly 50. See Dunfield et al. at FIG. 2 and column 5, lines 52-53. In disk drive assembly 50, a disk 60 is journaled about a shaft 62 that is rotated by an underlying spindle motor. See Dunfield et al. at FIG. 2 and column 5, lines 56-58. The spindle motor may be a magnetic bearing assembly 300. See Dunfield et al. at FIG. 3 and column 6, lines 3-5. The magnetic bearing assembly 300 includes a stator 312 having a conventional axial pivot 314 around which a hub shaft 316 of the rotor 317 rotates. See Dunfield et al. at FIG. 3 and column 6, lines 5-8.

Claim 19 depends directly from claim 9 and is directed to a device used for rotating disk shaped data carriers inside of disk players and/or recorders. See Appellants' specification at page 1, lines 2-3. The device includes a fixing means 4 and 5, a driving means 6 and a centering means 21. See Appellants' specification at FIG. 3 and page 9, lines 20-30. The fixing means comprises a

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plate 4 that supports a surface of a data carrier 1 having an opening 2 therein and an elongate part 5 which is inserted in the opening 2 such that the data carrier 1 is removably fixed thereto. See Appellants' specification at FIG. 2 and page 8, line 30 to page 8, line 1. The driving means 6 (i.e., electric motor (see Appellants' specification at page 7, lines 25-26)) acts on the fixing means 4 and 5 through a transmission means 7. See Appellants' specification at FIG. 2 and page 9, lines 1-2. The driving means 6 is partly connected to the disk player and/or recorder through elastical elongation means (e.g., springs 14 and 15). See Appellants' specification at FIG. 2 and page 9, lines 2-4. The centering means 21 disposed on the fixing means positions the elongate part 5 of the fixing means in a central position when the driving means 6 stops driving the data carrier 1. See Appellants' specification at FIG. 3 and page 10, lines 5-8. The centering means comprises a conical recess, which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder. See Appellants' specification at FIG. 3 and page 10, lines 5-10.

Dunfield et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier in which the centering means comprises a conical recess which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder. Rather, Dunfield et al. discloses a completely different arrangement in which a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly. Since Dunfield et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier in which the centering means comprises a conical recess which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder, claim 19 is patentable over Dunfield et al.

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Elsing et al. discloses a magnetic disc drive 10. See Elsing et al. at FIG. 1 and column 2, lines 61-62. The disc drive 10 includes a spindle 14, to which a magnetic disc 12 is fastened. See Elsing et al. at FIG. 2 and column 2, line 62. The spindle 14 and magnetic disc 12 are rotated by a disc drive motor 15. See Elsing et al. at FIG. 2, lines 63-64. A contact button 36 protruding from the spindle 14 contacts a flat contact arm 32 that is positioned over the spindle 14 to electrically ground the spindle 14. See Elsing et al. at FIG. 2 and column 3, lines 13-27.

Elsing et al. does not describe or suggest a device for rotating disk shaped data carriers inside disk players and/or recorders having a centering means disposed on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, wherein the centering means comprises a conical recess which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder. Rather, Elsing et al. discloses a completely different arrangement in which a disc attached to a spindle is rotated by a disc drive motor and a contact button protruding from the spindle contacts a flat contact arm that is positioned over the spindle to electrically ground the spindle. Since Elsing et al. does not teach disposing a centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, wherein the centering means comprises a conical recess which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder, claim 19 is patentable over Elsing et al.

Furthermore, since Dunfield et al only teaches a disk is journaled about a shaft that is rotated by a spindle motor comprising a magnetic bearing assembly and Elsing et al. only teaches a disc attached to a spindle is rotated by a disc drive motor and a contact button protruding from the spindle contacts a flat contact arm that is positioned over the spindle to electrically ground the spindle, the combination of these references does not describe or suggest applicant's arrangement recited in claim 19. In particular, claim 19 recites disposing a

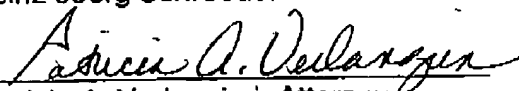
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centering means on a fixing means for positioning the fixing means in a central position when a driving means stops driving a data carrier, wherein the centering means comprises a conical recess which receives a tip shaped extremity from the fixing means and is elastically mounted to the player and/or recorder. Thus, claim 19 is patentable over the combination of these references.

In view of the foregoing arguments, Appellants' respectfully request that the Examiner's rejection of claims 9-11 and 18-19 be reversed. Favorable action is respectfully requested.

Respectfully submitted,
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September 8, 2004

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APPENDIX A - CLAIMS

9. A device for rotating inside a disk player and/or recorder a disk shaped data carrier having an opening around a center of said disk shaped carrier, said device comprising:

fixing means for removably fixing said data carrier by inserting a part of said fixing means in said opening, said fixing means comprising an elongated part;

driving means for rotating said data carrier by acting on said fixing means, said driving means being at least partly mechanically connected to said disk player and/or recorder, and said driving means comprising a rotor magnet mounted on said elongated part and a stator electro-magnet mounted on said player and/or recorder such that said rotor magnet and said stator electro-magnet cooperate as an electric motor; and

centering means disposed on said fixing means for positioning said fixing means in a central position when said driving means stops driving said data carrier.

10. The device according to claim 9 wherein said rotor magnet is repulsed at a determined distance from said stator electro-magnet by magnetic forces when said driving means drives said data carrier.

11. The device according to claim 9 wherein said elongated part has a point contact with said player and/or recorder such that said rotation axis of said fixing means passes through said point contact.

18. The device according to claim 10 wherein said elongated part has a point contact with said player and/or recorder such that a rotation axis of said fixing means passes through said point contact.

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19. The device according to claim 9 wherein said centering means comprises a conical recess which receives a tip shaped extremity from said fixing means, and is elastically mounted to said player and/or recorder.